HUDSON RIVER PCBs

NEW YORK

EPA ID# NYD980763841

EPA REGION 2

CONGRESSIONAL DIST. 22 and Others

Between Hudson Falls and
the Battery in New York City

NPL LISTING HISTORY
Proposed Date: 09/08/83
Final Date: 09/21/84

Site Description

The Hudson River PCBs site includes the approximately 200-mile stretch of the Hudson River from Hudson Falls to the Battery in New York City. The Upper Hudson River, an approximately 40-mile reach of the river from Hudson Falls to Troy, in Washington, Saratoga and Rensselaer Counties, is the reach that has been selected for remediation. The General Electric Company discharged between 209,000 and 1.3 million pounds of polychlorinated biphenyls (PCBs) into the river from two capacitor manufacturing plants located in Hudson Falls and Fort Edward. The PCBs from these discharges contaminated the sediments of the Upper Hudson River. Also included in the site are five remnant deposits, which are river sediments that were exposed when the level of the river was lowered due to the removal of the Fort Edward Dam, in 1973.

In 1976, because of the concern over the bioaccumulation of PCBs in fish and other aquatic organisms and their subsequent consumption by people, the State of New York banned fishing in the Upper Hudson River and commercial fishing of striped bass, and several other species, in the Lower Hudson. In August 1995, the Upper Hudson was re-opened to fishing, but only on a catch and release basis.

Albany, the largest city in the basin, has a population of more than 100,000 people; the Town of Fort Edward has a population of 6,480. Land uses in the Hudson River Basin include agriculture, service, and manufacturing, in addition to residential. The Hudson River is an important source of hydroelectric power, public water supplies, transportation, and recreation. The Cities of Waterford, Poughkeepsie, and Rhinebeck, as well as the Highland and Port Ewen Water Districts obtain their water supplies directly from the Hudson River. In addition, a water intake near Chelsea, which is north of Beacon, may be used to supplement New York City's water supply during periods of drought. The Town of Waterford obtains water from the Upper Hudson River, which is currently the only municipal water supply intake below Fort Edward and above the Troy Dam.

The Hudson River has been designated an American Heritage River because of its important role in American history and culture.

Site Responsibility: This site is being addressed through a combination of Federal and potential responsible party actions

Threats and Contaminants

Fish in the Hudson River have been contaminated with PCBs, and eating contaminated fish has been found to present an unacceptable risk (i.e., could affect the health of individuals.) Other exposure pathways to PCBs in the river do not generally exceed acceptable risk levels, such as drinking water, volatilization, or recreational exposure to sediment or water. Concerns related to possible exposure of residents and ecological receptors to PCB contamination in the floodplains are being further evaluated concurrent with the design phase of this project.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases(Remnant Deposits and River Sediments) directed at cleanup of the Upper Hudson River. A floodplains evaluation is also in progress.

Response Action Status

Immediate Actions: In 1977 and 1978, an estimated 180,000 cubic yards of contaminated sediments were dredged from the east channel at Fort Edward to clear the navigational channel. These dredged sediments, along with approximately 14,000 cubic yards of highly contaminated sediments from one of the remnant areas, were placed in a clay-lined containment cell. A 40-mile stretch of the Upper Hudson River is open only to catch and release fishing, and the Lower Hudson River has a commercial fishing ban and consumption advisories on striped bass and several other species.

In 1991, investigations at Bakers Falls, in the vicinity of the General Electric Hudson Falls facility (a separate New York State listed hazardous waste site) showed elevated PCB concentrations in the water column. General Electric signed a consent agreement with the State of New York to further investigate this area and to conduct interim remedial measures to prevent PCB contamination from this source from entering the river. Numerous measures have been implemented, including: preventing flow of river water through seep areas in an abandoned mill building, installation of seep collection systems, removal of contaminated sediment from the mill building, pressure grouting of bedrock in areas where seeps were observed in the riverbed, and oil phase PCB collection wells. The State of New York selected a long term remedy for the facility in March 2004. Information collected for the Hudson Falls Plant site investigation was incorporated into the EPA's decision for addressing the contaminated river sediments.

A removal action was also performed on Rogers Island. Information generated by New York State in the early 1990's along with development activities on the southern portion of the island raised concerns regarding potential exposure to PCBs by current residents and potential future users of Rogers Island. EPA decided it was necessary to remove PCB and lead contaminated soils from properties on the northern (residential) area of the island. Removal of the contaminated soil was completed in December 1999.

Long-Term Remedial Phases

Remnant Deposits: General Electric, under a Consent Decree with EPA, conducted an interim cleanup of the remnant deposits, selected in the 1984 Record of Decision for the site. The remedy

chosen for this portion of the site was in-place containment of shoreline remnant deposits. This includes covering the affected areas with a geosynthetic clay liner and a 2-foot layer of soil, followed by grading and revegetating to minimize erosion. The river banks were stabilized with rock to prevent scouring. Cap construction and the erection of gates to limit site access were completed in 1991.

River Sediments: In the 1984 Record of Decision (ROD) for the site, EPA selected an interim "no-action" decision for the contaminated river sediments. After conducting a comprehensive reassessment of the earlier decision, EPA decided in February 2002 that it is appropriate to remediate the Upper Hudson River. The remedy selected in the 2002 ROD includes the dredging of approximately 2.65 million cubic yards of PCB-contaminated sediments from the Upper Hudson River, which was estimated to contain 70,000 kg (about 150,000 lbs) of total PCBs (approximately 65% of the total PCB mass present within the Upper Hudson River). The selected remedy assumes that a separate source control action would be implemented at the GE Hudson Falls plant. The major components of the selected remedy include:

• Removal of sediments based primarily on a mass per unit area (MPA) of 3 g/m 2 Tri+ PCBs or greater (approximately 1.56 million cubic yards of sediments) from River Section 1;

• Removal of sediments based primarily on an MPA of 10 g/m 2 Tri+ PCBs or greater (approximately 0.58 million cubic yards of sediments) from River Section 2;

• Removal of selected sediments with high concentrations of PCBs and high erosional potential (NYSDEC Hot Spots 36, 37, and the southern portion of 39) (approximately 0.51 million cubic yards) from River Section 3;

• Dredging of the navigation channel, as necessary, to implement the remedy and to avoid hindering canal traffic during implementation. Approximately 341,000 cubic yards of sediments will be removed from the navigation channel (included in volume estimates in the first three components, above);

• Removal of all PCB-contaminated sediments within areas targeted for remediation, with an anticipated residual of approximately 1 mg/kg Tri+ PCBs (prior to backfilling);

• Performance standards for air quality and noise are included in this ROD consistent with state and federal law;

• Other performance standards (including but not necessarily limited to resuspension rates during dredging, production rates during dredging, and residuals after dredging) will be developed during the design with input from the public and in consultation with the state and federal natural resource trustees. These performance standards will be enforceable, and based on objective environmental and scientific criteria. The standards will promote accountability and ensure that the cleanup meets the human health and environmental protection objectives of the ROD.

• Independent external peer review of the dredging resuspension, PCB residuals, and production rate performance standards and the attendant monitoring program, as well as the report prepared at the end of the first phase of dredging that will evaluate the dredging with respect to these performance standards;

• Performance of the dredging in two phases whereby remedial dredging will occur at a reduced rate during the first year of dredging. This will allow comparison of operations with pre-established performance standards and evaluation of necessary adjustments to dredging operations in the succeeding phase or to the standards. Beginning in phase 1 and continuing throughout the life of

the project, EPA will conduct an extensive monitoring program. The data EPA gathers, as well as the Agency's ongoing evaluation of the work with respect to the performance standards, will be made available to the public in a timely manner and will be used to evaluate the project to determine whether it is achieving its human health and environmental protection objectives;

• Backfill of dredged areas with approximately one foot of clean material to isolate residual PCB contamination and to expedite habitat recovery, where appropriate;

• Use of rail and/or barge for transportation of clean backfill materials within the Upper Hudson River area;

• Monitored Natural Attenuation (MNA) of PCB contamination that remains in the river after dredging;

• Use of environmental dredging techniques to minimize and control resuspension of sediments during dredging;

• Transport of dredged sediments via barge or pipeline to sediment processing/transfer facilities for dewatering and, as needed, stabilization;

• Rail and/or barge transport of dewatered, stabilized sediments to an appropriate licensed off-site landfill(s) for disposal. If a beneficial use of some portion of the dredged material is arranged, then an appropriate transportation method will be determined (rail, truck, or barge);

• Monitoring of fish, water and sediment to determine when Remediation Goals are reached, and also monitoring the restoration of aquatic vegetation; and,

• Implementation (or modification) of appropriate institutional controls such as fish consumption advisories and fishing restrictions by the responsible authorities, until relevant Remediation Goals are met.

The targeting of Hot Spots 36, 37 and the southern portion of 39, was based on available data showing that those areas have high PCB concentrations, and potential for loss to the water column or uptake by biota. Additional sampling is being conducted during remedial design to determine whether other areas in River Section 3 have these characteristics and therefore need to be remediated as part of the selected remedy.

Remedial dredging will be conducted in two phases. The first phase will be the first construction season of remedial dredging. The dredging during that year will be implemented initially at less than full scale operation. It will include an extensive monitoring program of all operations. An independent external peer review of the dredging resuspension, PCB residuals, and production rate performance standards will be conducted during design. Monitoring data will be compared to performance standards identified in this ROD or developed during the remedial design with input from the public and in consultation with the State and federal natural resource trustees. The second phase will be the remainder of the dredging operation, which will be conducted at full-scale. During the full-scale remedial dredging, EPA will continue to monitor, evaluate performance data and make necessary adjustments.

The ROD also noted that sampling of the floodplains would be performed during the remedial design phase of the river sediments remedy. This sampling program is underway

Enforcement Status

EPA has entered into two Administrative Orders on Consent (AOCs) with General Electric Company (GE). Under the July 2002 AOC the company agreed to conduct the extensive sediment sampling needed to identify areas to be dredged; under the August 2003 AOC the company agreed to design both Phase 1 and Phase 2 of the project. EPA and GE recently reached agreement on a Consent Decree (CD) for under which GE would implement the first phase of the dredging remedy, slated to begin in the spring of 2007, and which would allow for a seamless transition for the Company to perform the remainder of the remedy. The proposed CD was lodged with the Federal District Court in Albany, New York on October 6, 2005. Comments on the CD were accepted through December 14, 2005 and are currently being evaluated.

Under the agreements, EPA has already received approximately $37 million from GE for past site costs. The CD calls for GE to pay EPA an additional $78 million for the Agency's past and future costs if GE takes on Phase 2 of the dredging program pursuant to the CD; if GE only conducts the first phase of the dredging program the additional payment would amount to approximately $43 million. Additionally, the agreement contains a provision to help ensure that there is no delay in the transition between Phase 1 and Phase 2 of the project. It requires GE to spend up to $5 million between the end of the Phase 1 dredging and the date of GE’s decision whether or not to conduct Phase 2, to prepare for the initiation of the second phase of dredging during the fall of 2008.

Under an earlier agreement GE agreed to implement the in-place containment remedy for the remnant deposits and to reimburse EPA for any costs incurred for that portion of the site remedy.

Cleanup Progress (Threat Mitigated by Physical Clean-up Work)

EPA has made significant progress on the sediment remedy since the ROD was issued, reaching milestones that include the collection and analysis of more approximately 50,000 samples from the river bottom for PCB analysis, the completion of strict engineering and quality of life performance standards to protect public health and minimize impacts on Hudson River communities, the siting of the needed sediment transfer/processing facility in Fort Edward, New York, and the approval of the Intermediate Remedial Design for Phase 1of the project. It is anticipated that the construction of the sediment processing facility will begin in the summer of 2006, and that Phase 1 dredging will take place in 2007.

Cap construction was completed at the remnant deposits area of the Hudson River PCBs site in 1991, which prevents exposure to contaminants by direct contact or inhalation. In addition, the capping along with bank stabilization should minimize the amount of PCBs entering the river from the remnant deposits. Further studies to evaluate alternatives to address the river sediments are underway.

After the implementation of interim remedial measures at the Hudson Falls Plant site, PCB concentrations in the water-column decreased to levels which are similar or below those measured before the 1991 peak PCB levels. Additional studies were conducted to evaluate if additional control measures could further reduce contributions to the water column from the Hudson Falls Plant site. New York State selected additional remedial measures for the the facility in March 2004. It is anticipated that the construction of the groundwater portion of the remedy will begin in 2006 and be completed in late 2007. The overburden soils portion of the remedy is being currently being designed by GE.

New York State has issued a Record of Decision on Jan. 28, 2000 for the Ft. Edward plant site

dealing with PCB-contaminated soils and sediments at the plant outfall. The work at the facility is substantially complete and a groundwater treatment system is operational, although additional investigation of contamination in bedrock seeps near the plant outfall is ongoing.

Site Repositories

Adriance Memorial Library, 93 Market Street, Poughkeepsie, NY 12601

Crandell Library, City Park, Glens Falls, NY 12801

Edgewater Public Library, 49 Hudson Ave., Edgewater, NJ 07020

New York State Library, CEC Empire State Plaza, Albany, NY 12230

Saratoga County EMC, 50 W. High Street, Ballston Spa, NY 12020

U.S. Environmental Protection Agency Records Center, 290 Broadway, 18th Floor, NY, NY 10007

USEPA, Hudson River Field Office, 421 Lower Main Street, Fort Edward, NY 12839